

# Hyperloop One Global Challenge

## Introduction

The Hyperloop One Global Challenge is a competition which invites teams anywhere on Earth to put forward a comprehensive commercial, transport, economic, and policy case for their cities, regions, or countries to be considered to host the first hyperloop networks. The Hyperloop One Global Challenge is not an engineering competition: we bring the technology, you tell us how it should be used in your location.

Advised by an international jury of leading experts in transport, technology, economics and innovation, Hyperloop One is seeking to collaborate with applicants who most powerfully make the case for how Hyperloop would not only transform passenger and cargo transport in their locations, but also how that Hyperloop transformation will drive economic growth, generate opportunities for development, and create radically new opportunities for people to live anywhere, work anywhere and be anywhere.

Entries are encouraged from any kind of group with interest in a corridor. We positively encourage entries which bring together all the relevant parties with an interest in a corridor, including public sector authorities and private business, governments and investors, creative minds who plan infrastructure and the commercial partners who fund and deliver it. You should enter the Hyperloop One Global Challenge if you have the vision of Hyperloop on your corridor and the drive to make it happen.

By participating in our Global Challenge, you're securing access to Hyperloop One resources – experts, time, and tools – to develop your ideas. From the many submissions we receive, our diverse team of transportation experts will narrow the proposals down to 12 finalists. As a finalist, you will get additional access to our ecosystem, technology, coaching, guidance and a dedicated Hyperloop One point person to help you take your idea to the next level.

Ultimately, three winners will be chosen by a panel of experts from around the world. Teams that demonstrate a real corridor opportunity, favorable economics, a favorable investment climate and the willpower to advance regulatory climate stand the best chance of winning. Winners will be able to tap further into our network, get full access to our technology and our ability to help raise capital in creative ways.

## Entry Requirements

The Hyperloop One Global Challenge is an opportunity to identify and enrich great ideas. The winning ideas will be great along many dimensions that are required to bring new infrastructure to life. Therefore, we're taking a holistic approach towards evaluation and requesting that you provide details, data, and ideas along various dimensions.

We are requesting information regarding your corridor, strategic transformation you envision due to Hyperloop, current cargo and passenger flows on the corridor, legislative and regulatory processes for infrastructure funding in your region, and how you propose accelerating the process towards development.

The process is simple. Pool your resources and collect data along the various dimensions listed above addressing the detailed questions below and upload your documents per instructions provided. The portal for entry opens May 15, 2016 and closes on September 15, 2016.

## Detailed Request

Please provide succinct responses to the questions below to enable us to assess the potential feasibility of a Hyperloop network on your corridor.

### *Submission Format & Instructions*

Address the topics below in document form and supplement the quantitative responses by filling out the excel template. You may choose to upload one master document and or upload separate files for each of the six main categories of interest in addition to the excel template. Please limit responses to 4 pages per section. When submitting quantitative information, please ensure that the units are included (ie. monthly vs. yearly) so that we can properly assess your data.

### *Entrant Details*

We encourage entries from many types of groups (non-exhaustive list below) with interests in a corridor and positively view entries which bring together multiple relevant stakeholders.

These are just of few of the types of kinds of organizations who may wish to enter the Hyperloop Global Challenge:

- A group of private sector businesses who wish to secure Hyperloop to transform business conditions on your corridor.
- A Ministry or Department of Transport which wants to secure Hyperloop to transform transport on your corridor.
- An Innovation Agency, seeking opportunities for businesses in your location to participate in the Hyperloop One supply chain.
- A group of investors, who see Hyperloop's potential to generate transformational commercial returns, for example through providing unbeatably rapid transport in premium comfort, with massively lower operating costs.
- A group of developers, who see the potential to create once-in-a-generation increases in property values, as radically shorter Hyperloop journey times of a few minutes enable remote locations that were previously hours away to be developed or regenerated.
- A collaboration of academics or a research institute with research interests in the field, who see the potential of Hyperloop to change the how places work, the change the places people live, and to transform the how people, places and work interact in the 21st Century economy.
- An architectural practice, able to envision how Hyperloop transforms not just the built environment in a particular place, but also brings different places and functional spaces together to create new kinds of locations.
- A transport operator with a proven track record in rail, air, maritime or multimodal, seeking to transform your service portfolio with Hyperloop.
- An Economic Development Agency, seeking to transform the locational competitiveness of your cities, region or country.
- An engineering practice, with expert knowledge of the corridor in question and proposals on how Hyperloop could be optimally constructed in local physical conditions.
- A DBFOM consortium or Project Finance provider seeking to include Hyperloop in your project pipeline.
- A regional or national Government, seeking to leverage Hyperloop to boost the image and increase the worldwide profile of your territory.
- Urban mobility designers interested in building greener, smarter cities

Ideally, your entry will integrate many stakeholders above and provide a comprehensive and compelling rationale for bringing Hyperloop to your location.

#### **1. Tell us who you are and why you are submitting an entry.**

Of note, this is *not* an engineering contest. We encourage submissions from engineering firms, but from a corridor and transformation perspective, not a hyperloop system design perspective.

### *Corridor*

We are not only looking for transport corridors with lots of existing traffic. We want to identify corridors with the vision and drive to use Hyperloop to create new travel opportunities via a coordinated program of economic development and spatial development with Hyperloop as the enabling core strategic infrastructure.

- 2. Please provide a description of your corridor.**
- 3. List major traffic generators on or near the corridor, including but not limited to the following:**
  - Population centers
  - Employment centers: central business units, office parks, industrial zones
  - Transport hubs: airports, sea ports, rail hubs, feeder systems
  - Logistics Centers: container depots, distribution hubs, warehouses
  - Commercial developments: retail parks, tourism destinations
- 4. What are the distances between points along the corridor?**
- 5. How could a hyperloop network link these nodal points?**
- 6. Identify any existing Right-of-Way (ROWs), whether for transportation or utilities, as well as any known topographical or geological challenges along the corridor.**
- 7. Provide a map of the proposed Hyperloop network along the corridor and provide kmz files of proposed corridor and existing ROWs**

### *Strategic Transformation*

We want you to think big here. We are looking for quality and creativity about how hyperloop could fundamentally change your corridor and region. We'll give you a couple thought-provoking ideas, but this is not an exhaustive list. YOU tell us what's important to unleash the strategic potential of hyperloop on YOUR corridor.

- 8. Please respond to the following questions:**
  - a. **What happens when hours become minutes? Will you travel more or make different kinds of journeys?**
  - b. **What happens when hyperloop makes trips to remote cities shorter than trips to the suburbs by traditional modes?**
  - c. **What happens when you can capture the value of new development to contribute to the capital cost of a hyperloop network?**
  - d. **What happens when prime waterfront land currently covered by ports is liberated by a hyperloop container-shifter link to an inland container distribution hub?**
  - e. **How do your supply chains in the vicinity of your corridor evolve and benefit from hyperloop?**
  - f. **What happens when just-in-time deliveries can be made within minutes along your corridor?**
  - g. **What happens when two or more major airports are linked via hyperloop, essentially creating a single multi-runway super-hub and optimizing capacity?**
  - h. **What happens when hyperloop connections build powerhouse economies by combining populations, labor markets, cultural assets, and community services of separate cities into supercities?**

Feel free to use maps, graphic illustrations, architectural visualizations, and animations to convey this transformation. Provide links to any digital content.

### *Passenger & Cargo Flows*

To facilitate crafting the economic case for Hyperloop on your corridor, please provide population and economic output statistics along your corridor as well as details regarding passenger and cargo flows on your corridor. Since all corridors are unique, feel free to provide us with any additional information you feel is relevant.

Please also fill out the downloadable spreadsheet with volumes, current pricing, trip durations along each O&D pair.

9. What are historical, current, and projected population and economic output stats along your corridor?

10. Passenger Demand

a. Current Volumes

- i. How many people currently travel between each of the O&D pairs along the corridor annually? Please state flows as a bi-directional annual total (ie. total traffic in both directions).
- ii. What modes of transport do passengers currently use to make these journeys, and what is the mode split?
- iii. Are there seasonal differences in demand?
- iv. Why are they making these journeys? What is the split between business, commuting, and leisure?
- v. What is the total airport passengers per year by arriving, departing, and transit. Of arriving and departing passengers, how many destine or originate from points along your corridor?

b. Current Pricing

- i. What is the respective pricing for each mode?
  - For car transport, please include expenses such as fuel, parking, tolls, as well as car ownership expenses (insurance, servicing, taxes, depreciation, and finance charges) on a per average passenger basis for a round trip (Include average car loading number persons per car)
- ii. Are any modes benefiting from any subsidies or other tax advantages?

c. Trip Duration

- i. How long does each mode take? Include estimates of average access, boarding, and egress times.

d. Future Demand

- i. Are there plans for real estate development, industrial or commercial development, and/or population growth along this corridor?
- ii. Any other considerations that may affect future demand?

11. Cargo Demand

a. Current Volumes

- i. What are current cargo volumes by mode, type of good, packaging method (pallet, container, aircraft ULD, etc.) for each O&D pair annually? Please state flows as a bi-directional annual total and provide the trade balance.
- ii. Are there seasonal variations or daily peaks in demand, and if so, what is the variation?
- iii. How many daily truck movements on the corridor are required to move containers and airfreight ULDs to and from the ports and airports?
- iv. What are top 10 destinations for trucks and rail leaving ports and airports? What are the volumes?

b. Current Pricing

- i. What is the respective pricing for each mode today?
- ii. Are any modes benefiting from subsidies or other tax advantages?

c. Trip Duration and Process

- i. How long does each more take? Include estimates of handling times as well as transport times.
  - ii. What supply chain practices must be adapted to for seamless integration?
- d. What stakeholders are influential along the value chain, and what bottlenecks impact those stakeholders?

12. Future Demand

- a. Are there plans for industrial or commercial development, new distribution hubs, and/or population growth along this corridor?
- b. Any other considerations that may affect future demand?
- c. At a strategic level, discuss how these freight flows could be made for efficient if a Hyperloop system capable of moving packages, pallets, containers, airfreight ULDs, and courier/postal consignments is available?

#### *Government & Policy*

The methods of funding, permitting, and regulating infrastructure projects in your region will help us refine our analysis and understand your priorities.

**13. How does the State normally invest in infrastructure projects in your region?**

- Direct funding of 100% of the capital cost by the State, with 100% of the operational cost of the project borne by a State enterprise.
- Direct funding of 100% of the capital cost by the State, with the operation of the project franchised to private enterprise.
- Public Private Partnership for the project (e.g. Availability Payment models). If known, please state which aspects of DBFOM – Design, Build, Finance, Operate & Maintain – are carried out by the private sector. This varies in PPP, sometimes it is only O&M that is outsourced, in other cases the entire DBFOM package is competitively tendered.
- By creating long-term monopoly concessions to enable the private sector to bear the entire risk of a project (typical in toll roads, for example)

**14. Please provide examples of completed infrastructure projects in your region detailing project dates, capital costs, length of transport infrastructure, and markets served.**

**15. What risk mitigations or guarantees does your Government typically offer to private sector investors in major infrastructure projects?**

**16. What transport appraisal model is used by Government or its Agencies in your region when assessing transport investment proposals? Please provide a link to the transport agency detailing the model.**

**17. How effective would this model be in capturing the radical impacts on time, spatial geography, and macro-economics due to hyperloop?**

- As an example, the UK Government's Transport Analysis Guidance (WebTAG) enforces a 'fixed land use' assumption.
- That is to say, the model takes no account of the relocation of employment or residents that will occur when a genuinely transformational transport scheme is constructed, which will cause entirely new patterns of economic activity to emerge and entirely new residential developments to occur on a very large scale.
- WebTAG would thus massively undervalue the Wider Economic Benefit of a major new strategic transport investment such as Hyperloop. Without an upgrade to the model, it simply could not measure transformational impact of a major infrastructure investment which fundamentally alters the places people live and work.

**18. What Value of Time is typically employed by government in your region?**

**19. What do you consider the top 3 socioeconomic benefits from constructing a Hyperloop? How do you place value on these benefits?**

**20. Are there any policy measures planned to stimulate modal-shift towards sustainable modes, energy efficiency programs, improved congestion methods, innovation and open data collection?**

- a. How are these measures being regulated and funded?

**21. How does government in your region support or incentivize inward investment?**

- a. What other types of financing resources, such as sovereign wealth funds, strategic investment funds, or CDFIs (community development financial institutions) are available to you?
- b. How does Government in your region underwrite, de-risk, guarantee, or otherwise participate in, PPP deals to deliver infrastructure projects?

22. What legislative process is typically required in your region for the Government to approve and what is a typical rough timeline for infrastructure projects?

- a. Which government agencies provide advice to legislature in your region? Please list and describe their level of involvement.
- b. Which independent expert bodies provide advice to your policy makers?
- c. What lobby groups actively represent current modes of transport in your region?

23. Which regulatory bodies are responsible for current modes of transport in your region?

- a. Are there innovation or research branches of your regulatory bodies that are typically the first touch point for new technologies? Please provide a brief commentary.

#### *Acceleration Plan*

Bringing your great ideas to life will require hard work not only by Hyperloop One, but also by communities around the world. We want to know how you propose to coordinate, streamline, and accelerate all the processes required for new infrastructure development. We also want to know about investment entities interested in projects as well as specialist expertise within your group that would like to contribute to further study/development on your corridor.

24. Please explain how you would:

- a. Accelerate the necessary Government legislation to permit Hyperloop to be constructed on your corridor
- b. Accelerate the necessary regulatory approval to operate Hyperloop on your corridor
- c. Establish or adopt a procurement regime which enables Hyperloop to be delivered within procurement rules applicable to your region
- d. Secure Government support for the project via public sector co-investment, investment guarantees, downstream participation in PPP-style regimes, etc.
- e. Secure government inward investment incentives
- f. Align economic development policy to maximize the benefits of Hyperloop on your corridor
- g. Align spatial development policy to maximize the benefits of Hyperloop on your corridor
- h. Develop a project finance structure which is likely to attract maximum commercial investor participation

25. Do you envision opportunities to partner with another region(s), and if so, what is the purpose of this collaboration?

- a. What is the envisioned structure of partnership?
- b. If your corridor crosses jurisdictions, what regulatory body is responsible for oversight and what types of approvals would be needed for this project to succeed? Who would be responsible for build, operate, maintain in this scenario?

26. Are there potential investors in your project group? If so, please provide details such as nature of entity, investment focus (utilities, infrastructure, innovation, property and real estate), typical quantum of investment, links to last published report and accounts for public corporations or financial information for private entities, and a list of recent investments most relevant to the proposed hyperloop project.

27. Please identify any expertise that you would like to contribute to further study and provide contact information:

- Civil engineering and alignment selection
- Terminal design
- Demand forecasting
- Operations

*THANK YOU! CONGRATULATIONS ON COMPLETING A VERY IMPORTANT STEP IN THE PROCESS. WE APPRECIATE YOUR IDEAS AND ARE LOOKING FORWARD TO WORKING TO BRING THEM TO LIFE.*